

REMARKS

This paper is responsive to any paper(s) indicated above, and is responsive in any other manner indicated below.

REQUEST FOR EXAMINER INTERVIEW AFTER FINAL REJECTION

An Examiner interview after final rejection is respectfully requested. As stated in MPEP '713.01, "Examiners may grant one interview after final rejection. See MPEP '713.09." MPEP '713.09, in turn, states, "Normally, one interview after final rejection is permitted." A substantial pendency period has already accumulated and substantial written prosecution has already been conducted in the application. At this point in time, an Examiner interview appears to be the most logical and preferred method of further prosecution in the application, i.e., an Examiner interview will accelerate prosecution by providing immediate discussion and feedback superior to the delayed discussion and feedback of normal intermittent written prosecution. Accordingly, Applicant respectfully submits the following reasons for requesting an Examiner interview. It is believed that the circumstance within the present case matches the validating circumstance for an Examiner interview as set forth in MPEP '713.01, i.e., "...the nature of the case is such that the interview could serve to develop and clarify specific issues and lead to a mutual understanding between the Examiner and the Applicant, and thereby advance the prosecution of the application," in that: it is believed that an interview would accelerate early agreement on the claims; it is believed that an interview would assist Applicant in judging the

extent of allowable subject matter in the application; and, it is believed that an interview would assist Applicant in judging the propriety and preferred mode of continued prosecution of the non-allowed claims and/or the entire application. The Examiner is respectfully requested to contact the attorney indicated on this paper at the local Washington, D.C. area telephone number of 703/312-6600 for the purpose of scheduling an examiner interview. The Examiner is thanked in advance for such considerations. Contact will also be attempted by the undersigned attorneys to schedule an Examiner Interview. In the event that the present papers, in and of themselves, are sufficient to place the application in condition for allowance, no Examiner interview would be necessary.

PENDING CLAIMS

Claims 1-10, 12-18 and 20-26 were pending, under consideration and subjected to examination in the Office Action. At entry of this paper, Claims 1-10, 12-18 and 20-26 will remain pending for further consideration and examination in the application.

ALLOWED CLAIM(S)

Claims 15-18 and 20-25 have been allowed in the application, as indicated within the "Allowable Subject Matter" section on page 3 of the Office Action. Applicant and the undersigned respectfully thank the Examiner for such indication of allowable subject matter.

35 USC '112, 1ST PARAGRAPH REJECTION – WRITTEN DESCRIPTION

Claims 1-10, 12-14 and 26 have been rejected, under 35 USC '112, first paragraph, written description, for the concerns listed within the “112” section on page 2 of the Office Action. Traversal is appropriate, as follows.

More particularly, MPEP 2163 states two relevant guidelines to the present rejection, i.e., first, “To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that **one skilled in the art** can reasonably conclude that the inventor **had possession** of the claimed invention”, and secondly, “...**the PTO has the initial burden of presenting evidence or reasons why persons skilled in the art would not have recognized in the disclosure a description defined by the claims.**”

More particularly, regarding the disputed “reference unit”, Office Action comments **admit** that Applicant’s “...written description discloses a priority display control section 105 and priority display processing section 107 which in tandem perform the functions claim as being performed by a ‘reference unit’ “. Regarding such admission, Applicant respectfully notes that Applicant’s **central processing unit (CPU) 201** is actually a **(singular, or solo) “unit”** which **incorporates and/or effects both of Applicant’s “priority display control section 105” and priority display processing section 107** (as well as other sections). More particularly, the **5,454,073** parent patent’s columns **3/4** and **5/6** sheets (underlined copies appended herewith) clearly describe, and **FIG. 1** (highlighted copy appended herewith, for convenience) clearly illustrates, the shaded larger **CPU 201** block as

encompassing and providing the functions of the **shaded smaller priority display control section 105** and **priority display processing section 107** blocks.

Accordingly, it is respectfully submitted that persons skilled in the art would have reasonably concluded that the inventor **had possession** of the claimed “reference unit”, i.e., Applicant’s CPU 201 operating **as a single unit** providing Applicant’s “reference unit” (i.e., providing both **display control section 105** and **priority display processing section 107** functions).

Beyond the “possession” issue, the Examiner appears to be setting forth a position that phrases (e.g., “reference unit”) used within an amended claim **must be found in the same words** within the specification, or else a “written description” rejection is appropriate. Traversal is appropriate as follows.

More particularly, MPEP 2163 (directed to “written description” guidelines) itself, explicitly states “...**there is no in haec verba requirement**...” (i.e., “in the same words” requirement) with respect to “written description”, and continues to state simply that “...newly added claim limitations **must be supported in the specification through express, implicit, or inherent disclosure**.” MPEP 1302.02 states (in relevant part) “...that exact terms need not be used *in haec verba* to satisfy the written description requirement of the first paragraph of 35 U.S.C. 112.” Prior to the disputed claim amendments, it is respectfully noted that Applicant’s claims recited “means for referencing”. Clearly, persons skilled in the art **would have reasonably concluded** that Applicant’s **“means for referencing” provided express, implicit or inherent disclosure of the presently-disputed “reference unit” phrase**.

Based upon the foregoing, reconsideration and withdrawal of the above-referenced rejection are respectfully requested. If the Examiner continues such rejection, the Examiner should provide “**evidence or reasons why persons skilled in the art would not have recognized in the disclosure a description defined by the claims**”, as required by MPEP 2163 (directed to written description rejections).

As an aside, it is respectfully noted that Applicant is not firm on using the “reference unit” phrase, and Applicant **herein authorizes the Examiner to effect examiner’s amendments to change the “reference unit” phrase to a differing phrase** which may be more agreeable to the Examiner, to move the present application to allowance. **One example** may be to change back to “means for referencing”, and **another example** may be changing to “display control and processing unit”. The Examiner is invited to call the Undersigned at the local Washington, D.C. area telephone number of 703-312-6636 if discussions would be helpful.

RESERVATION OF RIGHTS

It is respectfully submitted that any and all claim amendments and/or cancellations submitted within this paper and throughout prosecution of the present application are without prejudice or disclaimer. That is, any above statements, or any present amendment or cancellation of claims (all made without prejudice or disclaimer), should not be taken as an indication or admission that any objection/rejection was valid, or as a disclaimer of any scope or subject matter. Applicant respectfully reserves all rights to file subsequent related application(s) (including reissue applications) directed to any/all previously claimed

limitations/features which have been subsequently amended or cancelled, or to any/all limitations/features not yet claimed, i.e., Applicant continues (indefinitely) to maintain no intention or desire to dedicate or surrender any limitations/features of subject matter of the present application to the public.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims listed above as presently being under consideration in the application are now in condition for allowance.

To the extent necessary, Applicant petitions for an extension of time under 37 CFR '1.136. Authorization is herein given to charge any shortage in the fees, including extension of time fees and excess claim fees, to Deposit Account No. 01-2135 (Case No. 500.30789R00) and please credit any excess fees to such deposit account.

Based upon all of the foregoing, allowance of all presently-pending claims is respectfully requested.

Respectfully submitted,

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separated to provide graphic data files.

The graphic data is expressed on rectangular coordinates as shown in FIG. 3B. The lengths in the X and Y directions are determined by the size of the drawing concerned. This graphic data is expressed in such a way that it is separated in plural levels such as, a level 42 including road data 45 (FIG. 4B), a level 43 including house corner data (FIG. 4C) and a level 44 including tube path data 47 (FIG. 4D). The data located at these levels when superposed as required to provide the entire graphic data is shown as a level 41 (FIG. 4A).

On the other hand, the attribute data is supplied to the file device 203 from a data inputting device, which collectively supplies data from a keyboard 206 or a floppy disk 208.

An operator manipulates a mouse 207 to display the drawing on a display device (CRT) 205 as follows. First, the operator manipulates the mouse 207 to move a cursor CU to one of a plurality of icons for selecting functions displayed on the CRT screen so that the function intended is specified. If the icon for 'drawing retrieval' is specified, a central processing unit (CPU) searches the drawing data concerned (composed of graphic data and related attribute data) to be temporarily stored in a main memory 202. The main memory 202 operates to store the programs for executing the processings, such as search and editing of the drawing data, as well as the drawing data being processed. The drawing data temporarily stored in the main memory 202 is edited by the CPU 201 in accordance with the valid display coordinate that is a display region of the CRT 205, and thereafter the edited data is displayed on the CRT 205. The operator can recognize the contents of a desired or objective drawing from the displayed image.

Further, in order to recognize the details of the drawing, the image is displayed so as to be partially enlarged. To this end, the cursor CU is moved using the mouse 207 to specify any square region within the CRT display region in terms of ends of a diagonal line so that a part of the drawing is enlarged or reduced. Actually, a part of the drawing data concerned stored in the main memory 202 is edited in an enlarged or reduced way, and the drawing data thus edited is displayed on the CRT 205.

An explanation will be given of the level display with priorities that permits a desired drawing to be displayed within a predetermined time.

FIG. 1 shows a block diagram of one embodiment of the present invention in which the CPU 201 executes the processing of level display with priorities. In FIG. 1, the display screen or field 101 is composed of an icon region 102 where the mouse is manipulated to select the function of retrieval or searching and displaying a desired drawing, and a drawing displaying region 103 where the drawing retrieved by mouse manipulation is displayed. The mouse 207 is used to select the function from the icon region 102 and to specify the location of the drawing to be displayed on the drawing displaying region 103. The keyboard 206 is used to set the condition of searching a drawing. The data inputted from the keyboard 206 and the mouse 207 are supplied to an operation input unit 104 in the CPU 201. The drawing data is previously stored in the file device 203.

An explanation will be given of the relationship between the function of each of the functional units within the CPU 201, and an operation of manipulation and display.

A desired drawing is retrieved or searched using an index drawing, drawing number, etc. and thereafter is displayed on the display device. The operation of the CPU 201 in such a

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display processing process will be explained below. First, using the mouse 207, the item 'drawing retrieval' is selected or designated on the icon region 102 for mouse manipulation. This selective designation is inputted to a manipulation input section 104 thereby to activate a priority display control section 105. The priority display control section 105 directs a graphic retrieval section 106 to retrieve the desired drawing (data). Further, when the level to be displayed in the graphic data retrieved from the graphic file 203 is changed, the priority display control section 105 serves to automatically change the priority level for the corresponding level on the display priority table previously defined in accordance with the changing history of the level concerned. Specifically, as shown in FIG. 10, the priority allotted for each level number is changed in accordance with the history of the operation of changing the level to be displayed. If the operation is directed to addition of the level to be displayed, the priority of the level number concerned is decreased by 1, and if it is directed to cancellation of the level to be displayed, the priority is increased. It should be noted that the amount of changing the priority must be limited in the range between a minimum value and a maximum value which are previously defined.

FIG. 11 shows the flow of the processings illustrated in FIG. 10. First, in step 1101, when the operator initiates the operation of selecting the level to be displayed, the presence or absence of addition/cancellation of the level to be displayed is designated for the level number concerned on the display priority table. In step 1102, the amount of changing the priority for each level number is calculated as -1 or $+1$ in accordance with the presence or absence of the addition/cancellation of the level to be displayed. In step 1103, the priority due to the history of changing the level to be displayed is calculated on the basis of the above calculation result. In step 1104, the priority after the history change is checked to see if it is within the allowable range. If it is within the allowable range, in step 1105, the priority after the history changing is directly written in the display priority table. If it is outside the range, in step 1106, where it is smaller than the minimum limit, the allowable minimum priority is written in the display priority table, and where it is larger than the upper limit, the allowable maximum priority is written in the display priority table.

The method of defining the display priority table of FIG. 5 during a displaying time will be explained below. FIG. 12 shows the process of making the display priority table of FIG. 5 during the displaying time. First, in step 1201, a table of the capacity of the graphic data for each level as shown in FIG. 9A is made for any drawing specified by the operator. In step 1202, using the graphic data capacity table for each level, the time required for display is calculated on the basis of the amount of data displayed per unit time. In step 1203, a graph (FIG. 13A) showing the distribution of the frequency for each level which depends on an individual time slot is formed. In step 1204, a graph showing the total display time as shown in FIG. 13B is made on the basis of the above graph showing the distribution. In step 1205, the display priority levels at e.g. five stages are successively allotted on the graph showing the total display time in accordance with the total display times. In step 1206, the average display times corresponding to the display priority levels at five stages are calculated. Specifically, the total display time corresponding to each priority level is divided by its frequency to calculate the average display for each priority level. Finally, in step 1207, a priority is allotted to the level corresponding to the average display time and the

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priority is written on the display priority table.

Returning to FIG. 1 again, when the graphic retrieval section 106 has retrieved the drawing data, a priority display processing section 107 is activated. Then, the amount of data which can be displayed during the display time previously set by a user or operator is calculated, and the amount of data is reported to the priority display processing section 107. The graphic retrieval section 106 retrieves the drawing data from the drawing files in the file device 203 on the basis of the number of the desired drawing and stores the retrieved drawing data in the main memory 202; it sends the data to the priority display processing section 107 immediately after retrieval of all the desired data has been completed. The priority display processing unit 107 takes in the drawing data and sequentially sends the drawing data at the level to be displayed to a display editing section 110 on the basis of a display priority table (FIG. 5) and the amount of data to be displayed within the prescribed time. The display editing processing section 110 draws the desired drawing on the drawing display region 103 on the basis of the drawing data sent.

FIG. 5 shows display priority tables on which the numbers of levels and their priority are stored. In this table, the smaller number of priority is defined as having a higher priority, but may be defined in a way reverse thereto.

FIGS. 6A, 6B and 6C show examples of drawings displayed for individual priorities. FIG. 6A shows a drawing 61 displayed with the priority of 1 in which the most important level group including a road 64, a water supply tube path 65 and a symbol 66 on the water supply tube path 66 is displayed. FIG. 6B shows a drawing 62 displayed with the priority of 2 in which a house corner level 67 is superposed on the graphic data with the priority of 1. FIG. 6C shows a drawing 63 with the priority of 3 in which the level relative to water supply devices 67 is superposed on the graphic data with the priorities of 1 and 2.

FIG. 7 shows the processing flow in the priority display control section 105. First, in step 701, the amount of data that can be displayed during a prescribed display time t is calculated using the following equation:

$$D_{\max} = t \cdot D_p \quad (1)$$

where D_{\max} : the largest amount of data which can be displayed during the time t

t : prescribed display time

D_p : the amount of data displayed during a unit time

In step 702, the amount of displayed data corresponding to a priority i is calculated, and in step 703, the request of data display with the priority of i is reported to the priority display processing section 107. Finally, in step 704, the total amount of displayed data up to the priority of i is calculated and the calculated amount of data is compared with the largest amount of data that can be displayed. If the former is within the range of the latter, the processing for the succeeding priority of $i+1$ is repeated.

FIG. 8 shows the processing flow in the priority display processing section 107. First, in step 801, the level corresponding to the priority of i is retrieved from the display priority table. In step 802, the display data corresponding to the level concerned is retrieved from the graphic retrieval section 106 and the retrieval result is supplied to the graphic editing section 110.

In this way, only the graphic data corresponding to the prescribed retrieval time can be automatically selected so that the drawing data with a high priority can be retrieved

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without being influenced by the complexity of the drawing concerned.

In designating the item 'drawing retrieval', in order to previously recognize the data capacity corresponding to the drawing data, a process reflecting the approximate data capacity of the drawing concerned on the icon to be retrieved will be performed as follows.

The mouse 207 is manipulated to move the cursor CU to the icon region 102 so that the icon of the item 'capacity three-dimensional display' is selected or designated on the icon region 102. This selective designation is inputted to the manipulation input section 104 of the CPU 201, and thereafter a request for the capacity of the three-dimensional display is reported to an icon three-dimensional display processing section 109. In previously registering drawing data in graphic files of the file device 105, a graphic data amount calculating section 108 calculates the capacity of the graphic data for each level and stores the calculation result on the main memory 202 as shown in FIG. 9A. The icon three-dimensional display section 109 forms the icon shape on the basis of the total capacity of data calculated by the graphic data amount calculation section 108 using the table of graphic data capacities (FIG. 9A) on the main memory 202 in accordance with the level of the desired drawing to be displayed. As seen from FIG. 9B, the icon shape is formed so that the depth of the three-dimensional icon corresponds to the capacity of the graphic data. The depth of the icon is converted from the maximum value of graphic data capacity previously defined as 100%. The three-dimensional icon is edited by the display editing section 110 as drawing data on the icon region 102 and the edited drawing data is displayed on the drawing display region 103.

In this way, the approximate data capacity of the drawing can be easily determined from the icon shape prior to the drawing retrieval so that the time taken for the retrieval and data processing can be recognized swiftly and easily.

The present invention can be applied to a so-called navigation device mounted in a car which can quickly display road traffic information on a display device.

We claim:

1. A drawing management and display device for displaying digital information of a system drawing, showing an entire system having a plurality of information items, within a desired display time, said drawing management and display device comprising:

a means for referencing a total display time required for displaying said system drawing, for determining a plurality of different display time priority levels each having a different display time which is shorter than said total display time, and for storing said system drawing as a plurality of sub-drawings each representing the same area of said system drawing and having a different number of said plurality of information items which make up said entire system such that display of each of said sub-drawings can be accomplished within a different said different display time, said sub-drawings being stored with respective priorities each of which represents an ability to display the sub-drawing within a different said different display time;

a selective display designating means for automatically selecting one of said sub-drawings stored in the storing means on the basis of the priority thereof in order to accomplish display within said desired display time; and

a means for displaying selected said sub-drawings within said desired display time in response to said selecting

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